

## 1 Comments from Daniel Carman

### 1. Page 1:

- Abstract:
- Line 4. Use "... azimuthal angle ...". [Done](#)
- Line 5. Use "... of the beam spin asymmetry (BSA) was ..." [is -> was, corrected!](#)
- Line 6. Use " $Q^2$ ". [Done](#)
- Line 9. Use "... and for exploring the origin ...". [Done.](#)
- Line 36. Use "... a three-dimensional (3-D) ...". [Added.](#)
- Line 38. Use "The measurement of free proton DVCS has been ...". [Modified.](#)
- Line 45. Use "... similar 3-D picture of the ...". [Corrected](#)
- Line 46. Use "... case, however, two ...". [Done](#)
- Line 65. Use "Fig. 1". [Kept as FIG.1. We show it in the text as shown in the caption.](#)
- Line 67. Use "i.e.". [Done](#)

### 2. Page 2:

- Fig. 1 caption.
- Line 5. Use "... is the nucleon longitudinal ...". [Done](#)
- Line 72. Use "chirally even". [Done](#)
- Eq. (1). Use comma after equation, not a period. [Done](#)
- Line 84. Use "... is the virtual photoproduction differential cross section ...". [We do not agree here.](#)
- Eq. (2). Add a comma after the equation. [Done](#)
- Line 93. Use "abovementioned". [Done](#)
- Eq. (3). Add a comma after the equation. [Done](#)
- Line 103. Use "... where  $\zeta$  is the ...". [Done](#)
- Line 105. Use "Similar expressions apply for the GPDs ...". Provide a reference here. [Done](#)
- Line 108. Use "longitudinally polarized". [Done](#)
- Line 113. Use "... centered 64 cm upstream ...". [Done](#)
- Line 115. Use "... [40] was supplemented ...". [Done](#)
- Line 117. Use "The IC extended ...". [Done](#)
- Line 123. Use "beamline". [Done](#)
- Line 138. Use "... timing cut was used to separate the EC ...". [Done](#)
- Line 142. Use "... photons were mostly soft ...". [Done](#)

### 3. Page 3:

- Line 144. Use "... cuts easily eliminated.". [Done](#)
- Line 145. Use "... photon was considered ...". [Done](#)
- Line 146. Use "... on the particle identification." [Done](#)

- Line 151. Use " $Q^2$ ". [Done](#)
- Line 153. Use " $W$ ". [Done](#)
- Line 155. Use "The squared transferred momentum to the recoil proton  $t$ , calculated from the four-momentum vectors of the incoming ...". [Done](#)
- Line 158. Use "... at a given  $Q^2$  and  $W$  ...". [Done](#)
- Line 161. Use "specifically used the ...". [Done](#)
- Line 173. Use "Fig. 2". [We keep it as in the caption.](#)
- Line 178. Use "... and we saw no sizable effect that could be ...". [Done](#)
- Line 183. Use "Fig. 3". [We keep it as in the caption.](#)
- Line 184. Use "... that contributed ...". [Done](#)
- Line 187. Use "... escapes detection.". [Done](#)
- Line 190. Use "... to be 6.5% by ...". [Done](#)
- Line 195. Use "... that were wrongly identified ...". [Done](#)
- Fig. 2 caption.
  - a- Line 2. Use "... to bottom are: ...". [Done](#)
  - b- Line 7. Use "... event candidates ..." [Done](#)
  - c- Line 8. Use "... events that passed ...". [Done](#)
  - d- Line 9. Use "... all of these cuts ...". [Done](#)
- Line 199. Use "... events were calculated as ...". [Done](#)

4. Page 4:

- Line 203. Use "... to be 8 to 10%". [Done](#)
- Eq. (6). Equation should end with a comma, not a period. [Done](#)
- Line 206. Use "... DVCS events for the positive ...". [Done](#)
- Line 207. Use "... beam-helicity states, ...". [Done.](#)
- Line 215. Use "...  $a_0$  term dominates the shape ...". [Done](#)
- Line 220. Use "Fig. 4". [We prefer to keep it as in the caption.](#)
- Line 222. Use "... integrated over the full ...". [Done](#)
- Line 223. Use "... integrated over the full ... integrated over the full ...". [Done](#)
- Line 225. Use "sin" and "cos" should be in rm font. In latex use "sin" and "cos" in math mode. [Done](#)
- Line 230. Use "statistical uncertainties". [Done](#)
- Line 231. Use "Fig. 5". [We prefer to keep it as in the caption.](#)
- Line 233. Use "Fig. 4". [We prefer to keep it as in the caption.](#)
- Line 234. Use "... does not show a strong ...". [Done](#)
- Line 236. Use "... are compared to the theoretical ...". [Done](#)
- Line 238. Use "Their model used a nuclear spectral function and considers mainly off-shell effects." This is a statement of jargon that is not appropriate for the general PRL audience. Please reconsider. [We kept it as it is.](#)

- Line 243. Use "... effects that are not taken ...". [Done](#)
  - Line 245. Use "... knocked-out proton ...". [Done](#)
  - Line 246. Use "On the graph for the  $-t$  ...". [Done](#)
  - Line 247. Use "HERMES Collaboration". [Done](#)
  - Line 254. Use "... we constructed ...". [Done](#)
  - Fig. 4. The labels are all too small on this plot (axis labels, titles, plot kinematic labels). [Will be revised.](#)
  - Fig. 4 caption.
    - a- Line 2. Use "(top row)". [Done](#)
    - b- Line 3. Use "(middle row)" and "(bottom row)". [Done](#)
    - c- Line 7. "sin" and "cos" should be in rm font. In latex use "sin" and "cos" in math mode. [Done](#)
  - Line 255. Use "Fig. 6". [We prefer to keep it as in the caption.](#)
  - Line 259. Use "... lower asymmetries that are independent of ...". [Done](#)
  - Line 262. Use "medium-modified". [Done](#)
  - Line 268. Use "... will be important to differentiate ...". [Done](#)
  - Line 273. Use "Our results are compared ...". [Done](#)
5. Page 5:
- Fig. 5 caption.
  - Line 5. Use "On the middle plot the curves ...". [Done](#)
  - Line 6. Use "On the bottom plot the solid ...". [Done](#)
  - Line 8. It is not clear what you mean by "enriched region". [They were not detecting the final state hadron and the were separating the coherent from the incoherent DVCS events based on the assumption that the coherent dominates the low  \$t\$  region and the incoherent dominate the high  \$t\$  region, and they avoided calling it pure coherent or incoherent by labeling them as coherent or incoherent enriched regions.](#)
  - Line 8. Use "... [30]; the curves represent ...". [Done](#)
- References:
- End the following references with a period: [2], [28], [29], [30], [31], [32], [33], [34], [38]. [Done. All the references have been double checked for this.](#)
  - Ref. [40] is not a CLAS Collaboration paper. [Cleaned](#)
  - Refs. [42] and [43] are not cited in the paper. [Cleaned.](#)

## 2 Comments from Michel Garçon

1. Since HERMES already measured DVCS BSA on "coherent enriched" and " incoherent enriched" event samples off He4, one has to be more careful i) in the use of "first" in the abstract and on lines 62 and 270, ii) on the way to quote or qualify ref. [30]. In any case, the way it is done now is not OK if only because Figs 5 and 6 show that there were previous measurements, and this is contradictory with the use of "first". My suggestion would be to keep the word "first" (at the risk of having problems with a referee), except maybe in line 62, to remove the ref 30 in line 49 and to add at the end of the paragraph in line 61 the sentence:

"The previous (or pioneering?) measurements of DVCS off nuclei, and in particular off  $^4\text{He}$ , performed at HERMES [30] yielded results with both "coherent enriched" and "incoherent enriched" event samples, hence not fully exclusive, but significant enough to be compared with our results below".

2. Abstract line 3: "within" or "close to the center of" instead of "in front of". [in front of -> within.](#)
3. Abstract next to last line: "for studying the structure of bound nucleons". [Done.](#)
4. Line 50: happens -> occurs. [Done.](#)
5. Fig. 1 caption: is not it -2ksi, and not 2ksi ? [Done.](#)
6. Line 158: ... minimum kinematically allowed ... [Done.](#)
7. Line 188-192: one wonders what is done with this 6.5%. If nothing is done, should be stated explicitly and/or justified [We have corrected our asymmetries for these accidentals.](#)  
[This sentence has been added to the paper: Our final asymmetries have been corrected for this contamination in the form  \$A\_{LU}^{corrected} = \frac{1}{1 - \text{contamination percentage}} A\_{LU}^{measured}\$](#)
8. Figs 2, 3 and 4: tick labels too small. [will be revised.](#)
9. Line 277: I would drop "exciting"; "novel" is enough. [Done.](#)
10. Ref. [3]: why not quote the latest 2018 issue? It also contains a section on DIS. [Done.](#)
11. Ref. [20]: this work was superseded by PRC92, 055202 (2015), a reanalysis of the same data. I would either replace Munoz Camacho et al. by Defurne et al, or add to CMC: updated in .... [Replaced by: M. Defurne et al. \(Jefferson Lab Hall A Collaboration\). Phys. Rev. C 92, 055202 \(2015\).](#)
12. Ref[38]: add B+M, PRD82, 0704010 (2010). [Added.](#)
13. Ref.[39]: why not give the publicly accessible link to the proposal? [Added.](#)

### 3 Comments from David Irland

1. Page 2, Equation 3: I don't see the definition of epsilon (or is it a curly E?) [It is the Compton form factor associated with the GPD E.](#)
2. Page 3, line 154: Is a lower limit of 2 GeV enough to avoid the nucleon resonance region? There are several known resonances in the range between 2 and 3 GeV. Perhaps you can argue that the effect of these is negligible. [Right, all the free nucleon DVCS analysis have made this assumption.](#)
3. Page 3, line 159-160: the equations are quite hard to follow, particularly with the braces. It may look better as a displaymath equation. [Tested. It is not looking much better.](#)
4. Page 4, figure 4: the font size is way too small! [Will be revised.](#)